## Publications/Presentations Fiscal Year 2004

#### **Environmental Research Division**

#### 1. Refereed Publications

Alvarado, J.S., and Rose, C., "Static Headspace Analysis of Volatile Organic Compounds in Soil and Vegetation Samples for Site Characterization," *Talanta* 62:17–23 (2004).

Bedzyk, M.J., Fenter, P., Zhang, Z., Cheng, L., Okasinski, J.S., and Sturchio, N.C., "X-ray Standing Wave Imaging," *Synchrotron Radiation News* 17(3):5–10 (2004).

Berkowitz, C.M., Jobson, T., Jiang, G., Spicer, C.W., and Doskey, P.V., "Chemical and Meteorological Characteristics Associated with Rapid Increases of O<sub>3</sub> in Houston, Texas," *Journal of Geophysical Research* 109, D10307, doi:10.1029/2003JD004141 (2004).

Bever, J.D., Schultz, P.A., Miller, R.M., Gades, L., and Jastrow, J.D., "Prairie Mycorrhizal Fungi Inoculant May Increase Native Prairie Plant Diversity on Restored Sites (Illinois)," *Ecological Restoration* 21:311-312 (2003).

Borrok, D., Fein, J.B., Tischler, M., O'Loughlin, E., Meyer, H., Liss, M., and Kemner, K.M., "The Effect of Acidic Solutions and Growth Conditions on the Adsorptive Properties of Bacterial Surfaces," *Chemical Geology* 209:107–119 (2004).

Boyanov, M.I., Kemner, K.M., Shibata, T., and Bunker, B.A., "Local Structure around Cr<sup>3+</sup> Ions in Dilute Acetate and Perchlorate Aqueous Solutions," *Journal of Physical Chemistry A* 108:5131–5138 (2004).

Coulter, R.L., and Kallistratova, M.A., "Two Decades of Progress in Sodar Techniques: A Review of 11 ISARS Proceedings," *Meteorology and Atmospheric Physics* 85:3–19 (2004).

Coulter, R.L., Pekour, M.S., and Martin, T.J., "Elevated Stratified Layers Observed with Sodar during VTMX," *Meteorology and Atmospheric Physics* 85:115–123 (2004).

Doskey, P.V., Kotamarthi, V.R., Fukui, Y., Cook, D.R., Breitbeil, III, F.W., and Wesely, M.L., "Air-Surface Exchange of Peroxyacetyl Nitrate (PAN) at a Grassland Site," *Journal of Geophysical Research* 109, D10310, doi:10.1029/2004JD004533 (2004).

Eirich, L.D., Craft, D.L., Steinberg, L., Asif, A., Eschenfeldt, W.H., Stols, L., Donnelly, M.I., and Wilson, C.R., "Cloning and Characterization of Three Fatty Alcohol Oxidase Genes from *Candida tropicalis* Strain ATCC 20336," *Applied and Environmental Microbiology* 70(8):4872–4879 (2004).

Eng, K., Coulter, R.L., and Burtsaert, W., "Vertical Velocity Variance in the Mixed Layer from Radar Wind Profilers," *Journal of Hydrologic Engineering* 8(6):301-307 (2003).

- Eschenfeldt, W.H., Zhang, Y., Samaha, H., Stols, L., Eirich, L.D., Wilson, C.R., and Donnelly, M.I., "Transformations of Fatty Acids Catalyzed by Cytochrome P450 Monooxygenase Enzymes of *Candida tropicalis*," *Applied and Environmental Microbiology* 69(10):5992-5999 (2003).
- Fenter, P., and Chen, L.X., "Self-Assembly: From Molecules to Materials," *Synchrotron Radiation News* 16(5):23–24 (2003).
- Fenter, P., Cheng, L., Park, C., Zhang, Z., and Sturchio, N.C., "Structure of the Orthoclase (001) and (010)-Water Interfaces by High-Resolution X-ray Reflectivity," *Geochimica et Cosmochimica Acta* 67(22):4267-4275 (2003).
- Fenter, P., Park, C., Cheng, L., Zhang, Z., and Sturchio, N.C., "New Insights into the Orthoclase Dissolution Mechanism with X-ray Reflectivity," *Water-Rock Interaction: Proceedings of the Eleventh International Symposium on Water-Rock Interaction, Saratoga Springs, New York, June 27–July 2, 2004* (2004).
- Fuller, M.E., and Manning, Jr., J.F., "Microbiological Changes during Bioremediation of Explosives-Contaminated Soils in Laboratory and Pilot-Scale Bioslurry Reactors," *Bioresource Technology* 91:123–133 (2004).
- Gaffney, J.S., Marley, N.A., and Cunningham. M.M., "Natural Radionuclides in Fine Aerosols in the Pittsburgh Area," *Atmospheric Environment* 38:3191–3200 (2004).
- Hawley, N., Lesht, B.M., and Schwab, D.J., "A Comparison of Observed and Modeled Surface Waves in Southern Lake Michigan and the Implications for Models of Sediment Resuspension," *Journal of Geophysical Research Oceans*, 109, C10S03, doi:10.1029/2002JC001592 (2004).
- Kallistratova, M.A., and Coulter, R.L., "Application of Sodars in the Study and Monitoring of the Environment," *Meteorology and Atmospheric Physics* 85:21–39 (2004).
- Klump, J.V., Edgington, D.N., Waples, J.T., Szmania, D.C., Brown, B.E., and Orlandini, K.A., "Sampling Methods and Approaches Using Radionuclide Tracers in the Study of Sediment Resuspension and Cross Margin Transport in Nearshore of the Laurentian Great Lakes," *International Journal of Sediment Research* 18(2):266-277 (2003).
- Marchand, R., Ackerman, T., Westwater, E.R., Clough, S.A., Cady-Pereira, K., and Liljegren, J.C., "An Assessment of Microwave Absorption Models and Retrievals of Cloud Liquid Water Using Clear-Sky Data," *Journal of Geophysical Research Atmospheres* 108(D24): Art. No. 4773 (2003).
- Matamala, R., Gonzalez-Meler, M.A., Jastrow, J.D., Norby, R.J., and Schlesinger, W.H., "Impacts of Fine Root Turnover on Forest NPP and Soil C Sequestration Potential," *Science* 302:1385-1387 (2003).
- Matamala, R., Gonzalez-Meler, M.A., Jastrow, J.D., Norby, R.J., and Schlesinger, W.H., "Response to Comment on 'Impacts of Fine Root Turnover on Forest NPP and Soil C Sequestration Potential," *Science* 304:1745 (2004).

- Modey, W.K., and Eatough, D.J., "Twenty-Four-Hour PC-BOSS Air-Monitoring Results from the NETL Fine-Particulate Sampling Site in Pittsburgh, Pennsylvania: An Annual Perspective," *Aerosol Science and Technology* 38:194–204 (2004).
- Nagy, K.L., Sturchio, N.C., Schlegel, M.L., and Fenter, P., "Cation Sorption at the Muscovite-Water Interface Using X-ray Reflectivity," *Water-Rock Interaction: Proceedings of the Eleventh International Symposium on Water-Rock Interaction*, Saratoga Springs, New York, June 27–July 2, 2004 (2004).
- O'Loughlin, E.J., and Burris, D.R., "Reduction of Halogenated Ethanes by Green Rust," *Environmental Toxicology and Chemistry* 23(1):41–48 (2004).
- O'Loughlin, E.J., Kelly, S.D., Kemner, K.M., Csencsits, R., and Cook, R.E., "Reduction of Ag<sup>I</sup>, Au<sup>III</sup>, Cu<sup>II</sup>, and Hg<sup>II</sup> by Fe<sup>II</sup>/Fe<sup>III</sup> Hydroxysulfate Green Rust," *Chemosphere* 53:437-446 (2003).
- O'Loughlin, E.J., Ma, H., and Burris, D.R., "Catalytic Effects of Ni-Humic Complexes on the Reductive Dehalogenation of C<sub>1</sub> and C<sub>2</sub> Chlorinated Hydrocarbons," pp. 297–324 in *Humic Substances: Nature's Most Versatile Materials*, edited by E.A. Ghabbour and G. Davies, Taylor and Francis, Inc., New York (2003).
- Predota, M., Cummings, P.T., Zhang, Z., Fenter, P., and Wesolowski, D.J., "Electric Double Layer at the Rutile (110) Surface. 2. Adsorption of Ions from Molecular Dynamics and X-ray Experiments," *Journal of Physics B* 108(32):12061–12072 (2004).
- Price, H.U., Jaffe, D.A., Cooper, O.R., and Doskey, P.V., "Photochemistry, Ozone Production, and Dilution during Long-Range Transport Episodes from Eurasia to the Northwestern United States," *Journal of Geophysical Research* 109, D23S13, doi:10.1029/2003JD004400 (2004).
- Soden, B.J., Turner, D.D., Lesht, B.M., and Miloshevich, L.M., "An Analysis of Satellite, Radiosonde, and Lidar Observations of Upper Tropospheric Water Vapor from the Atmospheric Radiation Measurement Program," *Journal of Geophysical Research* 198, D04105, doi:10.1029/2003JD003828 (2004).
- Stols, L., Sanville Millard, C., Dementieva, I., and Donnelly, M.I., "Production of Selenomethionine-Labeled Proteins in Two-Liter Plastic Bottles for Structure Determination," *Journal of Structural and Functional Genomics* 95:95–102 (2004).
- Sun, J., Lenschow, D.H., Burns, S.P., Banta, R.M., Newsom, R.K., Coulter, R., Frasier, S., Ince, T., Nappo, C., Balsley, B.B., Jensen, M., Mahrt, L., Miller, D., and Skelly, B., "Atmospheric Disturbances That Generate Intermittent Turbulence in Nocturnal Boundary Layers," *Boundary-Layer Meteorology* 110:255–279 (2004).
- Suzuki, Y., Kelly, S.D., Kemner, K.M., and Banfield, J.F., "Enzymatic U(VI) Reduction by *Desulfosporosinus* Species," *Radiochimica Acta* 92:11–16 (2004).
- Waples, J.T., Orlandini, K.A., Edgington, D.N., and Klump, J.V., "Seasonal and Spatial Dynamics of <sup>234</sup>Th/<sup>238</sup>U Disequilibria in Southern Lake Michigan," *Journal of Geophysical Research* 109, C10S06, doi:10.1029/2003JC002204 (2004).

Wesolowski, D.J., Anovitz, L.M., Benezeth, P., Chialvo, A.A., Palmer, D.A., Fenter, P., Cheng, L., Sturchio, N.C., Zhang, Z., Bedzyk, M.J., Kubicki, J.D., Fedkin, M.V., Lvov, S.N., Sykes, D., Cummings, P.T., Ridley, M.K., Machesky, M.L., Predota, M., Bandura, A.V., "Temperature Effects and Structure at the Rutile-Water Interface," *Water-Rock Interaction: Proceedings of the Eleventh International Symposium on Water-Rock Interaction, Saratoga Springs, New York, June 27–July 2, 2004* (2004).

Winkler, S., Ahmad, I., Golser, R., Kutschera, W., Orlandini, K.A., Paul, M., Priller, A., Steier, P., Valenta, A., and Vockenhuber, C., "Developing a Detection Method of Environmental <sup>224</sup>Pu," *Nuclear Instruments and Methods in Physics Research B* 223-224:817-822 (2004).

Zhang, Z., Fenter, P., Cheng, L., Sturchio, N.C., Bedzyk, M.J., Machesky, M.L., Wesolowski, D.J., "Model-Independent X-ray Imaging of Adsorbed Cations at the Crystal-Water Interface," *Surface Science* 554:L95–L100 (2004).

Zhang, Z., Fenter, P., Cheng, L., Sturchio, N.C., Bedzyk, M.J., Predota, M., Bandura, A., Kubicki, J., Lvov, S.N., Cummings, P.T., Chialvo, A.A., Ridley, M.K., Benezeth, P., Anovitz, L., Palmer, D.A., Machesky, M.L., and Wesolowski, D.J., "Ion Adsorption at the Rutile-Water Interface: Linking Molecular and Macroscopic Properties," *Langmuir* 20(12):4954–4969 (2004).

# 2. Books, Book Chapters, and Collections of Conference Proceedings

None.

#### 3. Reports

Boyanov, M., Shibata, T., Kemner, K., and Bunker, B., "XAFS Spectroscopy of the Tri-Chromium Acetate Aqueous Complex," boyanov1 in *Advanced Photon Source Activity Report 2002*, ANL-03/21, http://www.aps.anl.gov/apsar2002/BOYANOV1.PDF (2003).

Brown, Jr., G.E., Sutton, S.R., Bargar, J.R., Shuh, D.K., Bassett, W.A., Bertsch, P.M., Bisognano, J., Bleam, W.F., Clark, D.L., De Stasio, P., Fendorf, S.E., Fenter, P.A., Fontes, E., Hormes, J., Kemner, K.M., Myneni, S.C.B., O'Day, P.A., Pecher, K.H., Reeder, R.J., Roy, A., Traina, S.J., Willson, C., and Zachara, J.M., 2003 Report of EnviroSync — A National Organization of Environmental Science Users of Synchrotron Radiation Sources — Molecular Environmental Science: An Assessment of Research Accomplishments, Available Synchrotron Radiation Facilities, and Needs, SLAC-R-704, Stanford Linear Accelerator Center, Stanford Synchrotron Radiation Laboratory, Stanford University, Stanford, California (2004).

Chattopadhyay, S., Kelly, S.D., Valkar, V.R., Fan, L., and Segre, C.U., "EXAFS Studies of Fine Particles of magnetoelectric BiFeO<sub>3</sub>," chas1 in *Advanced Photon Source Activity Report 2002*, ANL-03/21, http://www.aps.anl.gov/apsar2002/CHAS1.PDF (2003).

- Fenter, P., Cheng, L., Park, C., Zhang, Z., and Sturchio, N.C., "Studying the Structure of the Orthoclase (001)-Water Interface and the (010)-Water Interface by High-Resolution X-ray Reflectivity," fenterp1in *Advanced Photon Source Activity Report 2002*, ANL-03/21, http://www.aps.anl.gov/apsar2002/FENTERP1.PDF (2003).
- Kelly, S.D., Kemner, K.M., Brooks, S.C., and Fredrickson, J.K., "XAFS Study of Calcium Complexation to Uranyl Bicarbonate," kellys2 in *Advanced Photon Source Activity Report* 2002, ANL-03/21, http://www.aps.anl.gov/apsar2002/KELLYS2.PDF (2003).
- Kemner, K.M., Kelly, S.D., O'Loughlin, E.J., Khare, T., Moe, L.A., Fox, B.G., Donnelly, M.I., Londer, Y., Schiffer, M., and Giometti, C.S., "XRF and XAFS Analysis of Electrophoretically Isolated Nondenatured Proteins," kellys1 in *Advanced Photon Source Activity Report 2002*, ANL-03/21, http://www.aps.anl.gov/apsar2002/KELLYS1.PDF (2003).
- LaFreniere, L.M., *Final Phase II Report: QuickSite® Investigation, Centralia, Kansas*, ANL/ER/TR-03/006, prepared for Commodity Credit Corporation, U.S. Department of Agriculture, by Argonne National Laboratory, Argonne, Illinois (2004).
- LaFreniere, L.M., Final Report: Completion of the Phase II Investigation at Milford, Nebraska Results of Targeted Studies on the Gerry Dunlap Property and Adjacent Properties in December 2003, ANL/ER/TR-04/008, prepared for Commodity Credit Corporation, U.S. Department of Agriculture, by Argonne National Laboratory, Argonne, Illinois (2004).
- LaFreniere, L.M., *Final Targeted Investigation Report: Western Plume at Frankfort, Kansas*, ANL/ER/TR-04/002, prepared for Commodity Credit Corporation, U.S. Department of Agriculture, by Argonne National Laboratory, Argonne, Illinois (2004).
- LaFreniere, L.M., Final Work Plan for Targeted Groundwater Sampling on the Hedrick Property at Waverly, Nebraska, ANL/ER/TR-03/005, prepared for Commodity Credit Corporation, U.S. Department of Agriculture, by Argonne National Laboratory, Argonne, Illinois (2003).
- LaFreniere, L.M., *Final Work Plan for Targeted Investigations at Murdock, Nebraska*, ANL/ER/TR-03/004, prepared for Commodity Credit Corporation, U.S. Department of Agriculture, by Argonne National Laboratory, Argonne, Illinois (2003).
- Park, C., Fenter, P., Regalbuto, J.R., and Sturchio, N.C., "X-ray Reflectivity Investigation of Physically Adsorbed Noble Metal Complexes on Oxide Surfaces in Aqueous Solutions," parkc1 in *Advanced Photon Source Activity Report 2002*, ANL-03/21, http://www.aps.anl.gov/apsar2002/PARKC1.PDF (2003).
- Zhang, Z., Fenter, P., Cheng, L., Sturchio, N.C., Bedzyk, M.J., Machesky, M.L., and Wesolowski, D.J., "Model-Independent X-ray Imaging of Adsorbed Cations at the Crystal-Water Interface," zhangz1 in *Advanced Photon Source Activity Report 2002*, ANL-03/21, http://www.aps.anl.gov/apsar2002/ZHANGZ1.PDF (2003).

Zhang, Z., Fenter, P., Cheng, L., Sturchio, N.C., Bedzyk, M.J., Predota, M., Cummings, P.T., Machesky, M.L., and Wesolowski, D.J., "Ion Adsorption at the Rutile-Water Interface: Linking Molecular and Macroscopic Properties," zhangz2 in *Advanced Photon Source Activity Report 2002*, ANL-03/21, http://www.aps.anl.gov/apsar2002/ZHANGZ2.PDF (2003).

### 4. Published Conference Papers (Unrefereed)

Coulter, R.L., Pekour, M.S., and Martin, T.J., "A Comparative Study of Sodar-Derived Dissipation Rates in Urban and Suburban Environments," pp. 181–184 in *12th International Symposium on Acoustic Remote Sensing and Associated Techniques of the Atmosphere and Oceans (ISARS 12)*, edited by P. Anderson, S. Bradley, and S. Von Hunerbein, Cambridge, United Kingdom, July 11–16, 2004 (2004).

Coulter, R.L., Pekour, M.S., Martin, T.J., Doran, J.C., and Shaw, W., "A Comparative Study of Dissipation Rates in Urban and Suburban Environments Using Sodar Data," Paper 3.12 in *Proceedings, Fifth Symposium on the Urban Environment*, American Meteorological Society, Vancouver, British Columbia, August 23–26, 2004 (2004).

Gaffney, J.S., and Marley, N.A., "Josiah Parsons Cooke (1827–1894): Links to Atmospheric Chemistry," Paper 1.1 in *Combined Preprints, Second Presidential History Symposium, 84th National Meeting of the American Meteorological Society*, Seattle, Washington, January 11-15, 2004, on CD (2004).

Gaffney, J.S., and Marley, N.A., "Megacities as Sources of Black Carbon," Paper J2.3 in Combined Preprints, Sixth Conference on Atmospheric Chemistry: Air Quality in Megacities, 84th National Meeting of the American Meteorological Society, Seattle, Washington, January 11–15, 2004, on CD (2004).

Holdridge, D.J., Liljegren, J.C., Sisterson, D.L., and Teske, J.J., "Status, Accomplishments, and Recent Developments at the ARM Climate Research Facility (ACRF) Southern Great Plains (SGP) Site," in *Fourteenth ARM Science Team Meeting Proceedings*, Albuquerque, New Mexico, March 22–26, 2004, http://www.arm.gov/publications/proceedings/conf14/extended\_abs/holdridge-dj.pdf (2004).

Klazura, G.E., Cook, D.R., Coulter, R.L., Hart, R.L., Holdridge, D.J., Lesht, B.M., Lucas, J.D., Martin, T.J., Pekour, M.S., and Wesely, M.L., "Atmospheric Boundary Layer Measurements in South-Central Kansas," TS-32.1 in *Proceedings*, 30th International Symposium on Remote Sensing of Environment, Honolulu, Hawaii, November 10-14, 2003, on CD (2003).

Kotamarthi, V.R., Lazaro, M.A., Chang, Y.-S., James, D.E., Kuiper, J., and Pulugurtha, S., "Air Quality Impacts of Wind-Blown Dust in a Southwestern U.S. Urban Valley: Preliminary Results from High-Resolution 3-D Model Simulations," in *Combined Preprints, Sixth Conference on Atmospheric Chemistry, 84th Annual Meeting of the American Meteorological Society*, Seattle, Washington, January 11–15, 2004, on CD (2004).

- Lesht, B.M., Liljegren, J.C., and Miloshevich, L.M., "Comparison of ECMWF Model Analyses with the Observed Upper-Air Temperature and Relative Humidity Climatology at the ARM NSA, SGP, and TWP Climate Research Facility Sites, in *Fourteenth ARM Science Team Meeting*, Albuquerque, New Mexico, March 22-26, 2004, http://www.arm.gov/publications/proceedings/conf14/extended\_abs/lesht-bm.pdf (2004).
- Liljegren, J.C., "Improved Retrievals of Temperature and Water Vapor Profiles with a Twelve-Channel Microwave Radiometer," in *Combined Preprints, Eighth Symposium on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface (IQAS-AOLS), American Meteorological Society*, Seattle, Washington, January 11–15, 2004, on CD (2004).
- Liljegren, J.C., and Lesht, B.M., "Preliminary Results with the Twelve-Channel Microwave Radiometer Profiler at the North Slope of Alaska (NSA) Climate Research Facility," *Fourteenth ARM Program Science Team Meeting Proceedings*, Albuquerque, New Mexico, March 22–26, 2004, http://www.arm.gov/publications/proceedings/conf14/extended\_abs/liljegren-jc.pdf (2004).
- Marley, N.A., and Gaffney, J.S., "Measurements of Ammonia in Mexico City with a Near-IR TDLAS Open Path System," paper J2.5 in *Combined Preprints, Sixth Conference on Atmospheric Chemistry: Gases, Aerosols, and Clouds, 84th National Meeting of the American Meteorological Society*, Seattle, Washington, January 11–15, 2004, on CD (2004).
- Pekour, M.S., "Experiences with the WindMaster Pro Sonic Anemometer," pp. 137–140 in *Proceedings, 12th International Symposium on Acoustic Remote Sensing and Associated Techniques of the Atmosphere and Oceans (ISARS 12)*, edited by P. Anderson, S. Bradley, and S. Von Hunerbein, Cambridge, United Kingdom, July 11–16, 2004 (2004).
- Pekour, M.S., "New Eddy Correlation System for ARM SGP Site," in *Fourteenth ARM Science Team Meeting Proceedings*, Albuquerque, New Mexico, March 22–26, 2004, http://www.arm.gov/publications/proceedings/conf14/extended\_abs/pekour-ms.pdf (2004).
- Turner, D.D., Gaustad, K.L., Clough, S.A., Cady-Pereira, K., Mlawer, E.J., Liljegren, J.C., and Clothiaux, E.E., "Improved PWV and LWP Retrievals from the Microwave Radiometer for ARM," *Fourteenth ARM Science Team Meeting Proceedings*, Albuquerque, New Mexico, March 22-26, 2004, http://www.arm.gov/publications/proceedings/conf14/extended\_abs/turner3-dd.pdf (2004).
- Westwater, E.R., Klein, M., Gasiewski, A., Leuski, V., Shaw, J., Liljegren, J.C., and Lesht, B.M., "The 2004 North Slope of Alaska Arctic Winter Radiometric Experiment," *Eighth Specialist Meeting on Microwave Radiometry and Remote Sensing Applications*, Rome, Italy, February 24-27, 2004 (2004).
- Westwater, E.R., Klein, M., Leuski, V., Gasiewski, A., Uttal, T., Hazen, D.A., Cimini, D., Mattioli, V., Weber, B.L., Dowlatshahi, S., Shaw, J.A., Liljegren, J.C., Lesht, B.M., and Zak, B.D., "Initial Results from the 2004 North Slope of Alaska Arctic Winter Radiometric Experiment," in *Proceedings, IGARSS-2004 Meeting*, IEEE Geoscience and Remote Sensing Society, Anchorage, Alaska, September 20-24, 2004 (2004).

Westwater, E.R., Klein, M., Leuski, V., Gasiewski, A.J., Uttal, T., Hazen, D.A., Cimini, D., Mattioli, V., Weber, B.L., Dowlatshahi, Shaw, J., Liljegren, J.C., Lesht, B.M., and Zak, B.D., "The 2004 North Slope of Alaska Arctic Winter Radiometric Experiment," in *Fourteenth ARM Science Team Meeting Proceedings*, Albuquerque, New Mexico, March 22–26, 2004, http://www.arm.gov/publications/proceedings/conf14/extended\_abs/westwater-er.pdf (2004).

### 5. Published Abstracts, Notes, Reviews, Comments, and Letters

Dedecker, R.G., Best, F.A., Demirgian, J.D., Flynn, C.J., Knuteson, R.O., Revercomb, H.E., and Turner, D.D., "The Future AERI — New Deployments, System Upgrades, and Rapid Sampling Operations," *Fourteenth ARM Science Team Meeting*, Albuquerque, New Mexico, March 22–26, 2004,

http://www.arm.gov/publications/proceedings/conf14/poster\_abs/ P00146.stm (2004).

Doskey, P.V., Kotamarthi, V.R., Pekour, M.S., Cook, D.R., Ritsche, M.T., Jobson, B.T., and Hubbe, J., "Measuring Trace Gas Fluxes from an Aircraft Platform," p. 70 in *NARSTO Emission Inventory Workshop: Innovative Methods for Emission Inventory Development and Evaluation*, Austin, Texas, October 14-17, 2003, http://www.cgenv.com/narsto/ (2003).

Doty, K.J., Eagan, R., Sisterson, D.L., and Wagener, R., "The Site and Computer Access Request System," *Fourteenth ARM Science Team Meeting*, Albuquerque, New Mexico, March 22-26, 2004,

http://www.arm.gov/publications/proceedings/conf14/poster\_abs/P00016.stm (2004).

Fenter, P., "X-ray Scattering as an Elemental and Chemical Probe of Solid-Fluid Interfaces," *Workshop on NSLS-II*, Brookhaven National Laboratory, Upton, New York, March 15, 2004 (2004).

Fenter, P., Park, C., Cheng, L., Zhang, Z., and Sturchio, N.C., "Insights into the Orthoclase Dissolution Mechanism Using X-ray Reflectivity," GEOC 166 in 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004, http://oasys2.confex.com/acs/227nm/techprogram/P725745.HTM (2004).

Gaffney, J.S., and Marley, N.A., "Black Carbon Measurements in Mexico City in April 2003," p. 291 in *Proceedings of 13th International Symposium "Transport and Air Pollution,*" Boulder, Colorado, September 13–15, 2004.

Gaffney, J.S., Marley, N.A., Sterling, K., and Sturchio, N.C., "Measurements of Natural Radioactivity in Submicron Aerosols in Mexico City," *Eos, Transactions, American Geophysical Union* 84(46), Fall Meeting Supplement, Abstract A12B-0080 (2003).

Gamblin, D., Boutton, T., Liao, J., Jastrow, J., and Filley, T., "Woody Plant Invasion of Grassland: Lignin and Aliphatic Biopolymer Chemistry and Carbon Isotope Composition in Physical Fractions," abstract in *Eos Transactions, American Geophysical Union* 84(46):B31D-0332 (2003).

Hawley, N., Lesht, B.M., and Schwab, D.J., "Simulation of Resuspension Events Using Bottom Stresses Derived from Observed and Modeled Wave Parameters," *Eos, Transactions, American Geophysical Union* 84(52), Ocean Science Meeting Supplement, Abstract OS53-B03 (2004).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter*, *October 2003*, ANL/ER/NL-03-10, Argonne National Laboratory, Argonne, Illinois (2003).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter, November 2003*, ANL/ER/NL-03-11, Argonne National Laboratory, Argonne, Illinois (2003).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter, December 2003*, ANL/ER/NL-03-12, Argonne National Laboratory, Argonne, Illinois (2003).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter, January* 2004, ANL/ER/NL-04–01, Argonne National Laboratory, Argonne, Illinois (2004).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter, February 2004*, ANL/ER/NL-04–02, Argonne National Laboratory, Argonne, Illinois (2004).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter*, *March 2004*, ANL/ER/NL-04–03, Argonne National Laboratory, Argonne, Illinois (2004).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter, April 2004*, ANL/ER/NL-04–04, Argonne National Laboratory, Argonne, Illinois (2004).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter, May 2004*, ANL/ER/NL-04–05, Argonne National Laboratory, Argonne, Illinois (2004).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter, June 2004*, ANL/ER/NL-04–06, Argonne National Laboratory, Argonne, Illinois (2004).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter, July 2004*, ANL/ER/NL-04–07, Argonne National Laboratory, Argonne, Illinois (2004).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter*, *August 2004*, ANL/ER/NL-04–08, Argonne National Laboratory, Argonne, Illinois (2004).

Holdridge, D., *Atmospheric Radiation Measurement Program Facilities Newsletter*, *September 2004*, ANL/ER/NL-04–09, Argonne National Laboratory, Argonne, Illinois (2004).

Jones, L., Sisterson, D.L., Porch, W., Mather, J.H., and Long, C.N., "DOE National User Facility in the Tropical Western Pacific," *Fourteenth ARM Science Team Meeting*, Albuquerque, New Mexico, March 22-26, 2004, http://www.arm.gov/publications/proceedings/conf14/poster\_abs/P00202.stm (2004).

- Kelly, S.D., Banfield, J.F., Brooks, S.C., Fredrickson, J.K., Rasbury, E.T., Spotl, C., Sturchio, N.C., Suzuki, Y., and Kemner, K.M., "Uranium in Calcium Carbonate Systems," in *Abstracts, Third Workshop on Speciation, Techniques, and Facilities for Radioactive Materials at Synchrotron Light Sources*, Berkeley, California, September 14–16, 2004 (2004).
- Kemner, K., Kelly, S., O'Loughlin, E., Boyanov, M., Nealson, K., Glasauer, S., Beveridge, T., Lai, B., Maser, J., and Cai, Z., "X-ray and Electron Microspectroscopy Investigations of the Spatial Distributions of Elemental Concentrations and Valence States in Bacteria," p. 14 in *Abstracts, Seventh Annual DOE-NABIR PI Workshop*, U.S. Department of Energy, Office of Biological and Environmental Research, Natural and Accelerated Bioremediation Program, Warrenton, Virginia, March 15–17, 2004 (2004).
- Kolm, K.E., Yan, Y.E., and Meyer, W.T., "Conceptualizing, Characterizing, and Modeling the Impacted Upper Silver Creek Hydrologic System, Utah, on a Watershed Scale: An Integrated, Interdisciplinary Hierarchical Approach," Paper 166-11, 2003 *Geological Society of America Annual Meeting*, Seattle, Washington, November 2-5, 2003, http://gsa.confex.com/gsa/2003AM/finalprogram/abstract\_67323.htm (2003).
- Lesht, B.M., and Miloshevich, L.M., "Comparison of Observed Upper-Air Temperature and Relative Humidity Climatology at NSA, SGP, and TWP Climate Research Sites with ECMWF Model Analyses," *Fourteenth ARM Science Team Meeting*, Albuquerque, New Mexico, March 22–26, 2004, http://www.arm.gov/publications/proceedings/conf14/poster\_abs/P00168.stm (2004).
- Li, S.-S., Stols, L., Donnelly, M.I., and Giometti, C.S., "Detection and Characterization of Complexes Using Proteomics Methods," *Chicago Biomedical Consortium Proteomics Workshop*, University of Illinois at Chicago, Chicago, Illinois, April 17, 2004 (2004).
- Liao, J.D., Boutton, T.W., and Jastrow, J.D., "Woody Plant Invasion of Grassland: Storage and Turnover of Carbon in Soil Physical Fractions," abstract in *Eos Transactions, American Geophysical Union* 84(46):B31D-0331 (2003).
- Liljegren, J.C., "Improved Retrievals of Temperature and Water Vapor Profiles Using a Twelve-Channel Microwave Radiometer," abstract 4.7 in *Eighth Symposium on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface (IQAS-AOLS)*, American Meteorological Society, Seattle, Washington, January 11-15, 2004, linked at http://ams.confex.com/ams/84Annual/techprogram/authorindex.htm (2004).
- Marley, N.A., and Gaffney, J.S., "Fast GC-Luminol Instrument for PAN and Nitrogen Dioxide Measurements," *Eos, Transactions, American Geophysical Union* 84(46), Fall Meeting Supplement, Abstract A42A-0742 (2003).
- Marley, N.A., and Gaffney, J.S., "Measurements of Ammonia in Mexico City in April 2003 Using Near-IR TDLAS Open Path System," p. 33 in *Proceedings of 13th International Symposium "Transport and Air Pollution,*" Boulder, Colorado, September 13–15, 2004.

- McCarthy, J.F., Perfect, E., Mayer, L.M., and Jastrow, J.D., "Determining the Nanoscale Morphology of Soil Microaggregates Using Small Angle Scattering," abstract S01-mccarthy127391-oral in *Annual Meeting Abstracts*, ASA-CSSA-SSSA Annual Meetings, Denver, Colorado, November 2-6, 2003, on CD-ROM (2003).
- Meyer, H., O'Loughlin, E.J., Sholto-Douglas, D., and Kemner, K.M., "Electron Donor Effects on the Reduction of AQDS by Several *Shewanella* Species," Q-198 in *Abstracts*, *104th General Meeting of the American Society for Microbiology*, New Orleans, Louisiana, May 23–27, 2004, on CD (2004).
- Miloshevich, L.M., Lesht, B.M., and Ritsche, M., "New Surface Meteorological Measurements at SGP, and Their Use for Assessing Radiosonde Measurement Accuracy," *Fourteenth ARM Science Team Meeting*, Albuquerque, New Mexico, March 22–26, 2004, http://www.arm.gov/publications/proceedings/conf14/poster\_abs/P00013.stm (2004).
- Miloshevich, L.M., Lesht, B.M., and Voemel, H., "Evaluation of ARM Radiosonde Humidity Measurements and Proposed Corrections Based on AWEX Radiosonde Intercomparisons," *Fourteenth ARM Science Team Meeting*, Albuquerque, New Mexico, March 22–26, 2004, http://www.arm.gov/publications/proceedings/conf14/poster\_abs/P00070.stm (2004).
- Nagy, K.L., Schlegel, M.L., Fenter, P., and Sturchio, N.C., "Sorption Structures at the Mica-Water and Quartz-Water Interfaces," COLL 124 in 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004, http://oasys2.confex.com/acs/227nm/techprogram/P717550.HTM (2004).
- O'Brien, S.L., Jastrow, J.D., Matamala, R., and Gonzalez-Meler, M.A., "Soil Carbon Accrual from C3 and C4 Plant Sources in a Restored Tallgrass Prairie Chronosequence," *Annual Meeting Abstracts, 89th Meeting of the Ecological Society of America*, Portland, Oregon, August 1-6, 2004, http://abstracts.co.allenpress.com/pweb/esa2004/document/?ID=38194 (2004).
- O'Loughlin, E., Scherer, M.M., Kemner, K.M., and Kelly, S.D., "Investigation of the Transformation of Uranium under Iron-Reducing Conditions: Reduction of U(VI) by Biogenic Fe(II)/Fe(III) Hydroxide (Green Rust)," p. 55 in *Abstracts, Seventh Annual DOE-NABIR PI Workshop*, U.S. Department of Energy, Office of Biological and Environmental Research, Natural and Accelerated Bioremediation Program, Warrenton, Virginia, March 15–17, 2004 (2004).
- Park, C., Fenter, P., Regalbuto, J.R., and Sturchio, N.C., "X-ray Reflectivity Study of Pt Solution Complexes Adsorbed at the Quartz-Water Interface," COLL 125 in 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004, http://oasys2.confex.com/acs/227nm/techprogram/P718299.HTM (2004).
- Park, C., Fenter, P., Sturchio, N.C., and Regalbuto, J.R., "Geometric and Spectroscopic Sub-Structures of Pt(NH<sub>3</sub>)<sub>4</sub><sup>2+</sup> Adsorbed at the Quartz (100)-Water Interface Determined by Resonant Anomalous X-ray Reflectivity," *Advanced Photon Source Users Meeting*, Argonne, Illinois, May 3–6, 2004 (2004).

- Predota, M., Cummings, P.T., Wesolowski, D.J., Zhang, Z., Fenter, P., and Machesky, M.L., "Electric Double Layer at the Rutile (110) Surface: Adsorption of Ions from Molecular Dynamics and X-ray Experiments," GEOC 99 in 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004, http://oasys2.confex.com/acs/ 227nm/techprogram/P725120.HTM (2004).
- Ridley, M.K., Machesky, M.L., Zhang, Z., Fenter, P., and Wesolowski, D.J., "Spectroscopically Constrained Surface Complexation Modeling of Yttrium Adsorption at the Rutile-Water Interface," GEOC 146 in 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004, http://oasys2.confex.com/acs/227nm/techprogram/P724530.HTM (2004).
- Sedivy, R.A., and Gilmore, S.M., "Combined Restoration of Natural Wetlands and Remediation of Carbon Tetrachloride Contamination in Groundwater through Spray Irrigation Treatment at the North Lake Basin Wildlife Management Area, Utica, Nebraska," 2004 Annual Conference of the Soil and Water Conservation Society, St. Paul, Minnesota, July 24-28, 2004 (2004).
- Sholto-Douglas, D., Donnelly, M.I., O'Loughlin, E.J., Meyer, H., Roden, E., and Kemner, K.M., "Investigation of Dissimilatory Iron Reduction in a Mixed Culture of *Shewanella oneidensis* and *Geobacter sulfurreducens*," Q-023 in *Abstracts, 104th General Meeting of the American Society for Microbiology*, New Orleans, Louisiana, May 23–27, 2004, on CD (2004).
- Turner, D.D., Clough, S.A., Cady-Pereira, K., Clothiaux, E.E., Liljegren, J.C., Mlawer, E.J., and Gaustad, K.L., "Improved PWV and LWP Retrievals from the Microwave Radiometer for ARM," *Fourteenth ARM Science Team Meeting*, Albuquerque, New Mexico, March 22-26, 2004, http://www.arm.gov/publications/proceedings/conf14/poster\_abs/P00174.stm (2004).
- Van Hove, T., Liljegren, J.C., Rocken, C., and Braun, J., "Using GFS Weather Model to Reduce Diurnal Differences between GPS PW and ARM MWR PW," *Fourteenth ARM Science Team Meeting*, Albuquerque, New Mexico, March 22–26, 2004, http://www.arm.gov/publications/proceedings/conf14/poster\_abs/P00094.stm (2004).
- Westwater, E.R., Klein, M., Leuski, V., Gasiewski, A., and Liljegren, J.C., "The 2004 North Slope of Alaska Arctic Winter Radiometric Experiment," p. 51, *Abstracts, Eighth Specialist Meeting on Microwave Radiometry and Remote Sensing Applications*, Rome, Italy, February 24–27, 2004 (2004).
- Yan, Y.E., Ballerstein, E., Sultan, M., and Becker, R., "Hydrologic Impacts of Lake Nasser and the Tushka Lakes on the Nubian Aquifer in SW Egypt," Paper 67-10, 2003 Geological Society of America Annual Meeting, Seattle, Washington, November 2-5, 2003, http://gsa.confex.com/gsa/2003AM/finalprogram/abstract\_63345.htm (2003).
- Yan, Y.E., Becker, R., Sultan, M., and Ballerstein, E., "Development of Tushka Lakes in the Southwestern Desert of Egypt," Paper 151-4, 2003 Geological Society of America Annual Meeting, Seattle, Washington, November 2-5, 2003, http://gsa.confex.com/gsa/2003AM/finalprogram/abstract\_65864.htm (2003).

Zhang, Z., Fenter, P., Bedzyk, M.J., Sturchio, N.C., Machesky, M.L., and Wesolowski, D.J., "Atomic Structure at the Rutile TiO<sub>2</sub> (110)-Aqueous Interface with Crystal Truncation Rod Measurements," GEOC 68 in 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004, http://oasys2.confex.com/acs/227nm/techprogram/P709255.HTM (2004).

Zhang, Z., Fenter, P., Sturchio, N.C., Bedzyk, M.J., Machesky, M.L., and Wesolowski, D.J., "X-ray Standing Wave Imaging of Ion Adsorption at the Rutile-Aqueous Solution Interface," *Advanced Photon Source Users Meeting*, Argonne, Illinois, May 3–6, 2004 (2004).

### **6.** Oral Presentations (speaker underlined)

<u>Boyanov, M.I.</u>, Kelly, S.D., Kemner, K.M., Bunker, B.A., Fein, J.B., Fowle, D.A., and Yee, N., "XAFS of Cd and U Sorption to Bacterial Surfaces — Bridging between Macroscopic Measurements and Molecular Binding Mechanism," Third International Conference on Interfaces against Pollution, Julich, Germany, May 24–27, 2004.

Cook, D.R., "EBBR Status, Plans, Goals, ARM Instrument Team Meeting," Argonne National Laboratory, Argonne, Illinois, August 18-19, 2004.

<u>Cook, D.R.</u>, "Towers Status, Plans, Goals, ARM Instrument Team Meeting," Argonne National Laboratory, Argonne, Illinois, August 18-19, 2004.

<u>Coulter, R.L.</u>, Pekour, M.S., and Martin, T.J., A Comparative Study of Sodar-Derived Dissipation Rates in Urban and Suburban Environments, 12th International Symposium on Acoustic Remote Sensing and Associated Techniques of the Atmosphere and Oceans (ISARS 12), Cambridge, United Kingdom, July 11–16, 2004.

<u>Coulter, R.L.</u>, Pekour, M.S., Martin, T.J., Doran, J.C., and Shaw, W., "A Comparative Study of Dissipation Rates in Urban and Suburban Environments Using Sodar Data," Fifth Symposium on the Urban Environment, American Meteorological Society, Vancouver, British Columbia, August 23–26, 2004.

<u>Dedecker, R.G.</u>, Best, F.A., Demirgian, J.D., Flynn, C.J., Knuteson, R.O., Revercomb, H.E., and Turner, D.D., "The Future AERI — New Deployments, System Upgrades, and Rapid Sampling Operations," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22–26, 2004.

<u>Demirgian, J.C.</u>, and Schneider, J.F., "An Inexpensive Method for Developing Robust Instrument Training Sets in an Urban Environment," Joint Service Scientific Conference on Chemical and Biological Defense Research, Towson, Maryland, November 17-20, 2003.

<u>Doskey, P.V.</u>, "Atmospheric Chemistry of Light Hydrocarbons in Urban Air," Chemistry Department, Loyola University, Chicago, Illinois, November 13, 2003.

Doskey, P.V., <u>Kotamarthi, V.R.</u>, Harris, L., Ochsner, H., Beck, A.R., and Modey, W.K., "Ozone in Metropolitan Chicago: Land-Lake Breeze Effects," 2004 Chicago Joint Conference on the Environment, Chicago, Illinois, April 6, 2004.

- <u>Doskey, P.V.</u>, Kotamarthi, V.R., Pekour, M.S., Cook, D.R., Ritsche, M.T., Jobson, B.T., and Hubbe, J., "Measuring Trace Gas Fluxes from an Aircraft Platform," NARSTO Emission Inventory Workshop: Innovative Methods for Emission Inventory Development and Evaluation, Austin, Texas, October 15, 2003.
- <u>Doty, K.J.</u>, Eagan, R., Sisterson, D.L., and Wagener, R., "The Site and Computer Access Request System," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22-26, 2004.
- <u>Fenter, P.</u>, "Direct Observations of Interfacial Water Structure at Mineral-Water Interfaces with X-ray Reflectivity," Gordon Research Conference on Chemistry at Interfaces, Meriden, New Hampshire, August 16–19, 2004.
- <u>Fenter, P.</u>, "Elemental, Chemical, and Structural Characterization of Mineral-Water Interfaces with X-ray Scattering Techniques," Future Directions in Synchrotron Environmental Science, Advanced Photon Source Users Meeting, Argonne, Illinois, May 4, 2004.
- <u>Fenter, P.</u>, "Structural, Elemental, and Chemical Characterization of Mineral-Water Interfaces with Synchrotron X-ray Scattering," Seminar, Forschungszentrum Karlsruhe, Karlsruhe, Germany, September 23, 2004.
- <u>Fenter, P.</u>, "Structural, Elemental, and Chemical Observations at the Mineral-Water Interface," Materials Science Division Colloquium, Argonne National Laboratory, Argonne, Illinois, August 12, 2004.
- <u>Fenter, P.</u>, "Using 'X-ray Vision' to See Structures and Processes at the Mineral-Water Interface," Deutsche Mineralogische Gesellschaft Annual Meeting, Karlsruhe, Germany, September 22, 2004.
- <u>Fenter, P.</u>, "X-ray Scattering as an Elemental and Chemical Probe of Solid-Fluid Interfaces," Workshop on NSLS-II, Brookhaven National Laboratory, Upton, New York, March 15, 2004.
- <u>Fenter, P.</u>, Park, C., Cheng, L., Zhang, Z., and Sturchio, N.C., "Insights into the Orthoclase Dissolution Mechanism Using X-ray Reflectivity," 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004.
- <u>Fenter, P.</u>, Park, C., Cheng, L., Zhang, Z., and Sturchio, N.C., "New Insights into the Orthoclase Dissolution Mechanism with X-ray Reflectivity," Eleventh International Symposium on Water-Rock Interaction, Saratoga Springs, New York, June 28, 2004.
- <u>Gaffney, J.S.</u>, "Career Opportunities and the Road to Success in Science," Community College Summer Internship Program, Argonne National Laboratory, Argonne, Illinois, June 30, 2004.
- <u>Gaffney, J.S.</u>, "Chicago and Mexico City Air Pollution Soot," Chemistry Day Symposium on Earth's Atmosphere and Beyond, Chicago Section of the American Chemical Society, Chicago, Illinois, October 25, 2003.

- <u>Gaffney</u>, <u>J.S.</u>, "Global Climate Change," Lockport Senior Men's Club, Lockport, Illinois, March 1, 2004.
- <u>Gaffney, J.S.</u>, "Goals and Objectives for Summer 2004," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 6, 2004.
- <u>Gaffney, J.S.</u>, "Keynote Address: A Hydrogen Economy Is It a Panacea? What Do We Know about H<sub>2</sub> and the Environment?" Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 12, 2004.
- <u>Gaffney, J.S.</u>, "Megacities Mexico City and Houston as Potential Field Sites," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 12, 2004.
- <u>Gaffney</u>, <u>J.S.</u>, "Overview of NIGEC," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 11, 2004.
- <u>Gaffney</u>, <u>J.S.</u>, "Overview of Orientation," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 7, 2004.
- <u>Gaffney, J.S.</u>, "The ARM Mobile Facility and UAV Program," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 10, 2004.
- <u>Gaffney</u>, J.S., "The Politics of Global Climate Change," Final Workshop, Global Change Education Program, Washington, D.C., August 15, 2004.
- <u>Gaffney, J.S.</u>, "Urban Aerosol and Megacity Studies," Subcommittee Meeting on Atmospheric Science Program Reconfiguration, U.S. Department of Energy, Office of Biological and Environmental Research, Washington, D.C., November 18, 2003.
- <u>Gaffney, J.S.</u>, and Marley, N.A., "Black Carbon Measurements in Mexico City in April 2003," 13th International Symposium "Transport and Air Pollution," Boulder, Colorado, September 13–15, 2004.
- Gaffney, J.S., and Marley, N.A., "Josiah Parsons Cooke (1827–1894): Links to Atmospheric Chemistry," Second Presidential History Symposium, 84th National Meeting of the American Meteorological Society, Seattle, Washington, January 13, 2004.
- <u>Gaffney, J.S.</u>, and Marley, N.A., "Megacities and Their Global Impacts: Mexico City Air Quality Studies," Seminar, Division of Educational Programs Summer Lecture Series, Argonne National Laboratory, Argonne, Illinois, June 30, 2004.
- <u>Gaffney, J.S.</u>, and Marley, N.A., "Megacities as Sources of Black Carbon," Sixth Conference on Atmospheric Chemistry: Air Quality in Megacities, 84th National Meeting of the American Meteorological Society, Seattle, Washington, January 13, 2004.
- <u>Gaffney, J.S.</u>, and Marley, N.A., "Update on Argonne Measurements of Black Carbon and Aerosols," MCMA Field Measurements Campaign Data Analysis Workshop, Massachusetts Institute of Technology, Cambridge, Massachusetts, January 7, 2004.

- <u>Gaffney, J.S.</u>, Marley, N.A., Sterling, K., and Sturchio, N.C., "Measurements of Natural Radioactivity in Submicron Aerosols in Mexico City," American Geophysical Union 2003 Fall Meeting, San Francisco, California, December 8–12, 2003.
- Gamblin, D., Boutton, T., Liao, J., Jastrow, J., and Filley, T., Woody "Plant Invasion of Grassland: Lignin and Aliphatic Biopolymer Chemistry and Carbon Isotope Composition in Physical Fractions," American Geophysical Union 2003 Fall Meeting, San Francisco, California, December 8-12, 2003.
- <u>Hawley, N.</u>, Lesht, B.M., and Schwab, D.J., "Simulation of Resuspension Events Using Bottom Stresses Derived from Observed and Modeled Wave Parameters," 12th Ocean Sciences Meeting, American Geophysical Union, Portland, Oregon, January 26–30, 2004.
- Holdridge, D.J., <u>Liljegren, J.C.</u>, Sisterson, D.L., and Teske, J.J., "Status, Accomplishments, and Recent Developments at the ARM Climate Research Facility (ACRF) Southern Great Plains (SGP) Site," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22–26, 2004.
- <u>Jastrow, J.D.</u>, "CSiTE Task 1.2.2. Soil Carbon Stabilization Progress," CSiTE Investigators Meeting, Argonne National Laboratory, Argonne, Illinois, September 20, 2004.
- <u>Jastrow, J.D.</u>, "Soil Carbon Processes, Sequestration, and Measurement: Introduction," DOE Carbon Sequestration and Terrestrial Carbon Cycle Science Team Meeting, Boulder, Colorado, October 16, 2003.
- <u>Jastrow, J.D.</u>, "Terrestrial Ecology Overview CSiTE Studies," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 8, 2004.
- Jastrow, J.D., Miller, R.M., Matamala, R., and Allison, V.J., "Effects of Elevated Atmospheric CO<sub>2</sub> on Soil," Annual SoyFACE Investigators Meeting, University of Illinois, Urbana-Champaign, Illinois, February 11, 2004.
- <u>Jastrow, J.D.</u>, Moran, K.K., Matamala, R., and Miller, R.M., "Multifactor Effects on Soil Organic Matter Dynamics: Soil Structural Controls," Annual Aspen FACE Investigators Meeting, Green Bay, Wisconsin, December 10, 2003.
- <u>Jastrow, J.D.</u>, O'Brien, S.L., Van Til, B.E., and Swanston, C.W., "Soil Carbon Dynamics in Unprotected and Protected Pools. Task 4a: Process/Mechanistic-Based Fractionations, Results (to date) for Year-0 and Year-1 Samples, Mineral Soil 0- to 15-cm Depth," EBIS Science Team Meeting, Gaithersburg, Maryland, January 6, 2004.
- Jones, L., Sisterson, D.L., Porch, W., Mather, J.H., and Long, C.N., "DOE National User Facility in the Tropical Western Pacific," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22-26, 2004.
- <u>Kelly, S.D.</u>, "Bioremediation of U-Contaminated Subsurface Environments and the Role of Synchrotron-Based X-ray Absorption Measurements," Future Directions in Synchrotron Environmental Science, Advanced Photon Source Users Meeting, Argonne, Illinois, May 4, 2004.

- <u>Kelly, S.D.</u>, "Introduction to Data Analysis," EXAFS Data Collection and Analysis Workshop, Upton, New York, July 2004.
- <u>Kelly, S.D.</u>, "Investigations of the Effect of the Biogeochemical Cycling of Iron on the Fate and Transport of Heavy Metal, Radionuclide, and Organic Contaminants," LDRD Mini-Symposium, Argonne National Laboratory, Argonne, Illinois, September 28, 2004.
- <u>Kelly, S.D.</u>, Banfield, J.F., Brooks, S.C., Fredrickson, J.K., Rasbury, E.T., Spotl, C., Sturchio, N.C., Suzuki, Y., and Kemner, K.M., "Uranium in Calcium Carbonate Systems," Third Workshop on Speciation, Techniques, and Facilities for Radioactive Materials at Synchrotron Light Sources, Berkeley, California, September 14–16, 2004.
- Kelly, S.D., <u>Kemner, K.M.</u>, Watson, D., Jardine, P., and Phillips, D., "Characterization of Uranium Valence State and Chemical Speciation at the NABIR FRC," Seventh Annual DOE-NABIR PI Workshop, U.S. Department of Energy, Office of Biological and Environmental Research, Natural and Accelerated Bioremediation Program, Warrenton, Virginia, March 15–17, 2004.
- Kemner, K., Kelly, S.D., O'Loughlin, E.J., Boyanov, M., Nealson, K., Glasauer, S., Beveridge, T., Lai, B., Maser, J., and Cai, Z., "X-ray and Electron Microspectroscopy Investigations of the Spatial Distributions of Elemental Concentrations and Valence States in Bacteria," Seventh Annual DOE-NABIR PI Workshop, U.S. Department of Energy, Office of Biological and Environmental Research, Natural and Accelerated Bioremediation Program, Warrenton, Virginia, March 15–17, 2004.
- <u>Kemner, K.M.</u>, "Overview of Synchrotron Environmental Science," Future Directions in Synchrotron Environmental Science, Advanced Photon Source Users Meeting, Argonne, Illinois, May 4, 2004.
- <u>Kemner, K.M.</u>, "The Advanced Photon Source: How It Can Aid in Environmental Studies," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 8, 2004.
- <u>Kemner, K.M.</u>, Kelly, S.D., Boyanov, M., Glasauer, S., and Beveridge, T., "An Overview of the Use of X-rays for Biogeochemistry Investigations," Geology Department Seminar, University of Southern California, Los Angeles, California, October 2003.
- Kemner, K.M., Kelly, S.D., O'Loughlin, E.J., Boyanov, M., Glasauer, S., Beveridge, T., Lai, B., Maser, J., Cai, Z., Hoffmann, A., Cook, R., and Csencsits, R., "Nanoscience and Biomineralization, LDRD Mini-Symposium," Argonne National Laboratory, Argonne, Illinois, October 28, 2003.
- <u>Kemner, K.M.</u>, Kelly, S.D., O'Loughlin, E.J., Lai, B., Maser, J., Cai, Z., Londer, Y., Schiffer, M., and Nealson, K.H., "X-ray Microprobe Investigations of Elemental Distributions and Concentrations at Mineral-Microbe Interfaces," American Geophysical Union 2003 Fall Meeting, San Francisco, California, December 8-12, 2003.

- Kemner, K.M., Kelly, S.D., O'Loughlin, E.J., Lai, B., Maser, J., Schneegurt, M., Kulpa, Jr., C.F., and Nealson, K.H., "X-ray Absorption Spectroscopy and Microprobe Investigations of Mineral-Microbe Interfaces and Biogeochemical Processes," Department of Environmental Engineering, Washington University, St. Louis, Missouri, April 9, 2004.
- Kemner, K.M., Kelly, S.D., O'Loughlin, E.J., Lai, B., Maser, J., Nealson, K., Schneegurt, M., and Kulpa, C.F., "Opportunities for Soil Scientists in Employing Synchrotron Radiation to Advance the Frontiers in Soil and Environmental Sciences," Inter Congress Meeting of the International Union of Soil Scientists, Philadelphia, Pennsylvania, April 25–29, 2004.
- Klazura, G.E., Cook, D.R., Coulter, R.L., Hart, R.L., Holdridge, D.J., Lesht, B.M., Lucas, J.D., Martin, T.J., Pekour, M.S., and Wesely, M.L., "Atmospheric Boundary Layer Measurements in South-Central Kansas," 30th International Symposium on Remote Sensing of Environment, Honolulu, Hawaii, November 10-14, 2003.
- Kolm, K.E., <u>Yan, Y.E.</u>, and Meyer, W.T., "Conceptualizing, Characterizing, and Modeling the Impacted Upper Silver Creek Hydrologic System, Utah, on a Watershed Scale: An Integrated, Interdisciplinary Hierarchical Approach," Geological Society of America Annual Meeting, Seattle, Washington, November 4, 2003.
- Kotamarthi, V.R., Lazaro, M.A., Chang, Y.-S., James, D.E., Kuiper, J., and Pulugurtha, S., "Air Quality Impacts of Wind-Blown Dust in a Southwestern U.S. Urban Valley: Preliminary Results from High-Resolution 3-D Model Simulations," Eighth Symposium on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface (IQAS-AOLS), 84th National Meeting of the American Meteorological Society, Seattle, Washington, January 12, 2004.
- <u>LaFreniere</u>, <u>L.M.</u>, "Application of Cone Penetrometer Technology to Environmental Site Characterization," Industrial Partners Committee Meeting, Argonne National Laboratory, Argonne, Illinois, June 7, 2004.
- <u>LaFreniere</u>, <u>L.M.</u>, "The Use of Cone Penetrometer Technology in Environmental Site Characterization and Remediation," Course/Seminar: Cone Penetrometer Testing (CPT) in Geotechnical and Environmental Practice, Argonne National Laboratory, Argonne, Illinois, August 20, 2004.
- <u>Lesht, B.M.</u>, "ARM Radiosondes in AWEX-G," Participants' Kick-off Meeting for the AWEX-G IOP, U.S. Department of Energy, Billings, Oklahoma, October 27, 2003.
- <u>Lesht, B.M.</u>, "Using Ocean Color Monitoring Satellites in Process Studies of the Great Lakes," Pegrum Lecture Series, University at Buffalo, State University of New York, Buffalo, New York, March 12, 2004.
- <u>Lesht, B.M.</u>, "Welcome," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 6, 2004.

- <u>Lesht, B.M.</u>, Miloshevich, L.M., and Liljegren, J.C., "Comparison of Observed Upper-Air Temperature and Relative Humidity Climatology at NSA, SGP, and TWP Climate Research Sites with ECMWF Model Analyses," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22–26, 2004.
- <u>Li, S.-S.</u>, Stols, L., Donnelly, M.I., and Giometti, C.S., "Detection and Characterization of Complexes Using Proteomics Methods," Chicago Biomedical Consortium Proteomics Workshop, University of Illinois at Chicago, Chicago, Illinois, April 17, 2004.
- <u>Liao, J.D.</u>, Boutton, T.W., and Jastrow, J.D., "Woody Plant Invasion of Grassland: Storage and Turnover of Carbon in Soil Physical Fractions," American Geophysical Union 2003 Fall Meeting, San Francisco, California, December 8-12, 2003.
- <u>Liljegren, J.C.</u>, "Capabilities and Status of the Radiometrics 89/150 GHz Microwave Radiometer," ARM Instantaneous Radiative Fluxes Working Group Meeting, U.S. Department of Energy, Broomfield, Colorado, October 29, 2003.
- <u>Liljegren, J.C.</u>, "Improved Retrievals of Temperature and Water Vapor Profiles with a Twelve-Channel Microwave Radiometer," Eighth Symposium on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface (IQAS-AOLS), 84th National Meeting of the American Meteorological Society, Seattle, Washington, January 12, 2004.
- <u>Liljegren, J.C.</u>, "Overview of ARM Instrument Status," ARM Instantaneous Radiative Fluxes Working Group Meeting, U.S. Department of Energy, Albany, New York, October 22, 2003.
- <u>Liljegren, J.C.</u>, "Status of ARM Instrumentation," ARM Coordination Team Meeting, U.S. Department of Energy, Alexandria, Virginia, November 19, 2003.
- <u>Liljegren, J.C.</u>, "The Effect of the Half-Width of the 22-GHz Water Vapor Line on Retrievals of Temperature and Water Vapor Profiles with a Twelve-Channel Microwave Radiometer," Eighth Specialist Meeting on Microwave Radiometry and Remote Sensing Applications, Rome, Italy, February 25, 2004.
- <u>Liljegren, J.C.</u>, "The Twelve-Channel Microwave Radiometer: An Overview," ARM Cloud Parameterization and Modeling Working Group Meeting, U.S. Department of Energy, Broomfield, Colorado, October 28, 2003.
- <u>Liljegren, J.C.</u>, and Lesht, B.M., "Preliminary Results with the Twelve-Channel Microwave Radiometer Profiler at the North Slope of Alaska (NSA) Climate Research Facility," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22–26, 2004.
- <u>Marley, N.A.</u>, "Nancy's Global Change Hot Topic 2004!" Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 11, 2004.
- Marley, N.A., and Gaffney, J.S., "Argonne Ammonia Measurements at CENICA and PAN/NO<sub>2</sub> Data Sets," MCMA Field Measurements Campaign Data Analysis Workshop, Massachusetts Institute of Technology, Cambridge, Massachusetts, January 7, 2004.

- Marley, N.A., and Gaffney, J.S., "Fast GC-Luminol Instrument for PAN and Nitrogen Dioxide Measurements," Bay Regional Atmospheric Chemistry Experiment (BRACE) Symposium, American Geophysical Union 2003 Fall Meeting, San Francisco, California, December 8–12, 2003.
- Marley, N.A., and Gaffney, J.S., "Measurements of Ammonia in Mexico City with a Near-IR TDLAS Open Path System," Sixth Conference on Atmospheric Chemistry: Gases, Aerosols, and Clouds, 84th National Meeting of the American Meteorological Society, Seattle, Washington, January 13, 2004.
- Marley, N.A., and Gaffney, J.S., "Measurements of Ammonia in Mexico City in April 2003 Using Near-IR TDLAS Open Path System," 13th International Symposium "Transport and Air Pollution," Boulder, Colorado, September 13–15, 2004.
- Marley, N.A., and <u>Gaffney, J.S.</u>, "The Atmospheric Science Program: Aerosol Radiative Forcing for Fun and Profit," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 12, 2004.
- Marley, N.A., and Gaffney, J.S., "Workshop: How Do You Write and Successfully Publish a Scientific Paper or Abstract? The Politics of Publishing!" Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 12, 2004.
- Matamala, R., "Tracking Carbon Sequestration with Isotopes," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 8, 2004.
- Matamala, R., Allison, V.J., Kirt, S., Miller, R.M., and <u>Jastrow, J.D.</u>, "Effects of Elevated Atmospheric CO<sub>2</sub> and O<sub>3</sub> on Root Length and Mycorrhizal Colonization," Annual SoyFACE Investigators Meeting, University of Illinois, Urbana-Champaign, Illinois, February 11, 2004.
- McCarthy, J.F., Perfect, E., Mayer, L.M., and Jastrow, J.D., "Determining the Nanoscale Morphology of Soil Microaggregates Using Small Angle Scattering," Annual Meetings of the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Denver, Colorado, November 2-6, 2003.
- Meyer, H., O'Loughlin, E.J., Sholto-Douglas, D.J., and Kemner, K.M., "Electron Donor Effects on the Reduction of AQDS by Several *Shewanella* Species," American Society of Microbiology National Meeting, New Orleans, Louisiana, May 23–27, 2004.
- Miller, R.M., "Fermilab Prairie Restoration Facility," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 8, 2004.
- Miloshevich, L.M., Lesht, B.M., and Ritsche, M., "New Surface Meteorological Measurements at SGP, and Their Use for Assessing Radiosonde Measurement Accuracy," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22–26, 2004.
- Miloshevich, L.M., Lesht, B.M., and Voemel, H., "Evaluation of ARM Radiosonde Humidity Measurements and Proposed Corrections Based on AWEX Radiosonde Intercomparisons," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22–26, 2004.

- Modey, W.K., and Doskey, P.V., "Rapid Sampling and High Resolution Analyses of Ambient Organic Species," State of the Science Workshop on Organic Speciation in Atmospheric Aerosols, Las Vegas, Nevada, April 5–7, 2004.
- Nagy, K.L., Schlegel, M.L., Fenter, P., and Sturchio, N.C., "Sorption Structures at the Mica-Water and Quartz-Water Interfaces," 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004.
- <u>Nagy, K.L.</u>, Sturchio, N.C., Schlegel, M.L., and Fenter, P., "Cation Sorption at the Muscovite-Water Interface Using X-ray Reflectivity," Eleventh International Symposium on Water-Rock Interaction, Saratoga Springs, New York, June 28, 2004.
- O'Loughlin, E., Scherer, M.M., Kemner, K.M., and Kelly, S.D., "Investigation of the Transformation of Uranium under Iron-Reducing Conditions: Reduction of U(VI) by Biogenic Fe(II)/Fe(III) Hydroxide (Green Rust)," Seventh Annual DOE-NABIR PI Workshop, U.S. Department of Energy, Office of Biological and Environmental Research, Natural and Accelerated Bioremediation Program, Warrenton, Virginia, March 15–17, 2004.
- <u>Park, C.</u>, Fenter, P., Regalbuto, J.R., and Sturchio, N.C., "X-ray Reflectivity Study of Pt Solution Complexes Adsorbed at the Quartz-Water Interface," 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004.
- <u>Park, C.</u>, Fenter, P., Sturchio, N.C., and Regalbuto, J.R., "Geometric and Spectroscopic Sub-Structures of Pt(NH<sub>3</sub>)<sub>4</sub><sup>2+</sup> Adsorbed at the Quartz (100)-Water Interface Determined by Resonant Anomalous X-ray Reflectivity," Advanced Photon Source Users Meeting, Argonne, Illinois, May 3–6, 2004.
- <u>Park, C.</u>, Fenter, P., Sturchio, N.C., and Regalbuto, J.R., "Geometric and Spectroscopic Substructures of Aqueous Metal Complexes Adsorbed at Oxide-Water Interfaces by Resonant Anomalous X-ray Reflectivity," Gordon Research Conference on Chemistry at Interfaces, Meriden, New Hampshire, August 16–19, 2004.
- <u>Pekour, M.S.</u>, "Experiences with the WindMaster Pro Sonic Anemometer," 12th International Symposium on Acoustic Remote Sensing and Associated Techniques of the Atmosphere and Oceans (ISARS 12), Cambridge, United Kingdom, July 11–16, 2004.
- <u>Pekour, M.S.</u>, "New Eddy Correlation System for ARM SGP Site," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22–26, 2004.
- <u>Pekour, M.</u>, and Cook, D.R., "Walnut River Watershed Site, Kansas," AmeriFlux 2003 Science Meeting, Boulder, Colorado, October 14-16, 2003.
- <u>Predota, M.</u>, Cummings, P.T., Wesolowski, D.J., Zhang, Z., Fenter, P., and Machesky, M.L., "Electric Double Layer at the Rutile (110) Surface: Adsorption of Ions from Molecular Dynamics and X-ray Experiments," 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004.

- <u>Ridley, M.K.</u>, Machesky, M.L., Zhang, Z., Fenter, P., and Wesolowski, D.J., "Spectroscopically Constrained Surface Complexation Modeling of Yttrium Adsorption at the Rutile-Water Interface," 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004.
- <u>Sedivy, R.A.</u>, and Gilmore, S.M., "Restoration of Natural Wetlands and Remediation of Contaminated Groundwater Using Spray Irrigation," Soil and Water Conservation Society, 59th Annual Conference, St. Paul, Minnesota, July 24–28, 2004.
- Sholto-Douglas, D.J., Meyer, H., Donnelly, M., O'Loughlin, E.J., Roden, E.E., and Kemner, K.M., "Investigation of Dissimilatory Iron Reduction in a Mixed Culture of *Shewanella oneidensis* and *Geobacter sulfurreducens*," American Society of Microbiology National Meeting, New Orleans, Louisiana, May 23–27, 2004.
- <u>Sisterson, D.L.</u>, "ARM Operations Report: You Manage What You Measure," ARM Coordination Team Meeting, U.S. Department of Energy, Alexandria, Virginia, November 18, 2003.
- <u>Sisterson, D.L.</u>, "ARM Overview," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 10, 2004.
- <u>Sisterson, D.L.</u>, "Evolution of DOE's ARM/CART Sites: Perspectives on Managing a Multi-Agency, Multi-Objective Program," Argonne Partnership Committee Meeting, Argonne National Laboratory, Argonne, Illinois, December 1, 2003.
- <u>Sisterson, D.L.</u>, "How Do Scientists Do What They Do?" Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 10, 2004.
- <u>Sisterson, D.L.</u>, "Operations Status Report," ARM Science Team Executive Committee Meeting, Albuquerque, New Mexico, March 16, 2004.
- <u>Sisterson, D.L.</u>, "Perspectives on Managing Multi-Agency, Multi-Pronged Programs," Carbon Cycle Science Steering Group Meeting, U.S. Department of Energy, Washington, D.C., November 13, 2003.
- <u>Sisterson, D.L.</u>, "What Do Scientists Do?" Churchville Middle School, Elmhurst School District, Elmhurst, Illinois, February 2–3, 2004.
- <u>Sisterson, D.L.</u>, "Who Are Scientists and How Do They Do What They Do?" Take Your Sibling to Work Day Symposium, Argonne National Laboratory, Argonne, Illinois, April 22, 2004.
- <u>Sisterson, D.L.</u>, "Who Are Scientists, and What Do They Do?" Chicago Public School System, Morton East High School, Cicero, Illinois, January 28, 2004.
- <u>Sisterson, D.L.</u>, "Wild Weather," Jerling Junior High School, Orland Park, Illinois, March 12, 2004.

- <u>Sisterson, D.L.</u>, and Liljegren, J.C., "ARM Sites and Instruments," Global Change Education Program Orientation, Argonne National Laboratory, Argonne, Illinois, June 10, 2004.
- <u>Sisterson, D.L.</u>, and <u>Nega, N.</u>, "Weather or Not," Science Olympics, Edison School, Elmhurst, Illinois, March 3, 2004.
- <u>Turner, D.D.</u>, Clough, S.A., Cady-Pereira, K., Clothiaux, E.E., Liljegren, J.C., Mlawer, E.J., and Gaustad, K.L., "Improved PWV and LWP Retrievals from the Microwave Radiometer for ARM," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22–26, 2004.
- <u>Van Hove, T.</u>, Liljegren, J.C., Rocken, C., and Braun, J., "Using GFS Weather Model to Reduce Diurnal Differences between GPS PW and ARM MWR PW," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22–26, 2004.
- Wesolowski, D.J., Anovitz, L.M., Benezeth, P., Chialvo, A.A., Palmer, D.A., Fenter, P., Cheng, L., Sturchio, N.C., Zhang, Z., Bedzyk, M.J., Kubicki, J.D., Fedkin, M.V., Lvov, S.N., Sykes, D., Cummings, P.T., Ridley, M.K., Machesky, M.L., Predota, M., Bandura, A.V., "Temperature Effects and Structure at the Rutile-Water Interface," Eleventh International Symposium on Water-Rock Interaction, Saratoga Springs, New York, June 28, 2004.
- Westwater, E.R., Klein, M., Gasiewski, A., Leuski, V., Shaw, J., Liljegren, J.C., and Lesht, B.M., "The 2004 North Slope of Alaska Arctic Winter Radiometric Experiment," Eighth Specialist Meeting on Microwave Radiometry and Remote Sensing Applications, Rome, Italy, February 24-27, 2004.
- Westwater, E.R., Klein, M., Gasiewski, A., Leuski, V., Shaw, J., Mattioli, V., Cimini, D., Liljegren, J.C., Lesht, B.M., and Zak, B.D., "The 2004 North Slope of Alaska Arctic Winter Radiometric Experiment," Fourteenth ARM Science Team Meeting, Albuquerque, New Mexico, March 22–26, 2004.
- Westwater, E.R., Klein, M., Leuski, V., Gasiewski, A., Uttal, T., Hazen, D.A., Cimini, D., Mattioli, V., Weber, B.L., Dowlatshahi, S., Shaw, J.A., Liljegren, J.C., Lesht, B.M., and Zak, B.D., "Initial Results from the 2004 North Slope of Alaska Arctic Winter Radiometric Experiment," IGARSS 2004, IEEE Geoscience and Remote Sensing Society, Anchorage, Alaska, September 20-24, 2004.
- <u>Yan, Y.E.</u>, "Short Course: Groundwater and Surface Water Modeling Using GMS and WMS," United Nations Development Program, Cairo University, Cairo, Egypt, December 29, 2003-January 5, 2004.
- <u>Yan, Y.E.</u>, Ballerstein, E., Sultan, M., and Becker, R., "Hydrologic Impacts of Lake Nasser and the Tushka Lakes on the Nubian Aquifer in SW Egypt," Geological Society of America Annual Meeting, Seattle, Washington, November 4, 2003.
- Yan, Y.E., Becker, R., Sultan, M., and Ballerstein, E., "Development of Tushka Lakes in the Southwestern Desert of Egypt," Geological Society of America Annual Meeting, Seattle, Washington, November 4, 2003.

Zhang, Z., Fenter, P., Bedzyk, M.J., Sturchio, N.C., Machesky, M.L., and Wesolowski, D.J., "Atomic Structure at the Rutile TiO<sub>2</sub> (110)-Aqueous Interface with Crystal Truncation Rod Measurements," 227th American Chemical Society National Meeting, Anaheim, California, March 28–April 1, 2004.

Zhang, Z., Fenter, P., Sturchio, N.C., Bedzyk, M.J., Machesky, M.L., and Wesolowski, D.J., "X-ray Standing Wave Imaging of Ion Adsorption at the Rutile-Aqueous Solution Interface," Advanced Photon Source Users Meeting, Argonne, Illinois, May 3–6, 2004.

Zhang, Z., Fenter, P., Sturchio, N.C., Bedzyk, M.J., Machesky, M.L., and Wesolowski, D.J., "X-ray Standing Wave Imaging of Ion Adsorption at the Rutile-Aqueous Solution Interface," Gordon Research Conference on Chemistry at Interfaces, Meriden, New Hampshire, August 16–19, 2004.

#### 7. Patents Issued

Burton, J.C., "Method for Performing Environmental Site Characterization," 6,782,321, August 24, 2004.

Donnelly, M.I., and Joachimiak, A., "Methods for Production of Proteins in Host Cells," 6,677,139, January 13, 2004.

Donnelly, M.I., Sanville Millard, C.Y., and Nghiem, N., "Method to Produce Succinic Acid from Raw Hydrolysates," 6,743,610, June 1, 2004.

LaFreniere, L.M., and Surgnier, D.H., "Air Delivery System for a Direct Push Drilling Swivel," 6,763,901, July 20, 2004.

Walker, J.L., Nashold, B.W., and Burton, J.C., "System and Method for Detecting Contamination Using Vegetation Sampling," 6,729,801, May 4, 2004.